
**PATENT APPLICATION**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of

Taketo TAKEUCHI

Application No.: 10/559,870

Filed: December 7, 2005

For: CONTROL DEVICE FOR A VEHICLE MOTOR

Group Art Unit: 2837

Examiner: R. MCCLOUD

Docket No.: 125195

**REPLY BRIEF**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following remarks are directed to the new points of argument raised in the Examiner's Answer dated June 24, 2009. In summary, Appellant explains that (1) Appellant has appropriately demonstrated the absence of claimed features from the combination of applied references, and has not merely addressed the references individually, (2) the Examiner's purported extrapolation from the disclosure of "overheated state" to the claimed invention is erroneous and based upon impermissible hindsight, (3) the Examiner's reliance upon maximum temperature and maximum current is misplaced, and (4) the absence of further limitation of stalled state is not relevant.

**(1) Appellant Has Appropriately Demonstrated The Absence Of Claimed Features From The Combination Of Applied References, And Has Not Merely Addressed The References Individually**

The Examiner's Answer repeatedly states that Appellant's Appeal Brief argues against the references individually, and that one cannot show nonobviousness by attacking references individually where the rejection is based on a combination of references. (Examiner's Answer, page 4, lines 19-22; page 9, lines 11-18; page 10, lines 18-24; page 11, lines 5-12; page 12, lines 1-7; page 13, line 19 - page 14, line 2; and page 14, lines 6-9). Appellant respectfully disagrees.

Appellant's Appeal Brief asserted that features in claims 1 and 9 are missing even assuming, *arguendo,* that Matsunaga and Shimazaki[1] are combined, and that such features would not otherwise have been known or obvious. (Appeal Brief, Section VII.A.1.c.). To support this position, Appellant necessarily had to first explain each of Matsunaga and Shimazaki individually. In other words, one must first understand what each of Matsunaga and Shimazaki discloses before determining whether the combination, i.e., the prior art as a whole, includes all of the features of claims 1 and 9.

The Examiner's repeated reliance on *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981), and *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986), is improper because the facts in the cited cases are not like those in this application. The appellants in the cited cases attempted to argue that it would not have been obvious to combine disclosures where the secondary reference does not provide any suggestion to use its disclosure. Appellant in this application did not raise such an argument. Appellant instead argued in the Appeal Brief that the combination of Matsunaga and Shimazaki fails to disclose

[1] Matsunaga et al. ("Matsunaga"), U.S. Patent No. 6,114,828, and Shimazaki et al. ("Shimazaki"), U.S. Patent Application Publication No. 2002/0116100.

or suggest that the torque of the vehicle motor is reduced when a selected temperature exceeds a restrictive temperature, as recited in claims 1 and 9.

The Examiner's Answer also argues why one of ordinary skill would have been motivated to combine Matsunaga and Shimazaki. (Examiner's Answer, page 12, line 18 - page 13, line 9, for example). However, without conceding the existence of any reasonable rationale for combining the two references, Appellant's Appeal Brief argued that even if the applied references are combined, features in claims 1 and 9 are missing, and such features would not otherwise have been known or obvious. Again, for example, Appellant argued that the combination of Matsunaga and Shimazaki fails to disclose or suggest that the torque of the vehicle motor is reduced when a selected temperature exceeds a restrictive temperature, as recited in claims 1 and 9.

The Examiner's Answer also argues about what is not precluded by claims 1 and 9. (Examiner's Answer, page 4, line 22 - page 5, line 10). Appellant respectfully disagrees with this approach. The issue is whether the combination of Matsunaga and Shimazaki includes all of the recited features of claims 1 and 9, not what is or is not otherwise precluded by the claims.

**(2) The Examiner's Purported Extrapolation From The Disclosure Of "Overheated State" In Matsunaga To The Claimed Invention Is Erroneous And Based Upon Impermissible Hindsight**

The Examiner's Answer argues, based upon Matsunaga's reference to "overheated state," that Matsunaga allegedly teaches reducing the torque of the vehicle motor when a selected temperature exceeds a restrictive temperature as recited in claims 1 and 9. (Examiner's Answer, page 6, lines 5-19; page 7, lines 10-19; page 8, lines 4-14; page 8, line 20 - page 9, line 7; and page 10, lines 4-14). In this regard, Appellant asserts that the Examiner ignored how Matsunaga actually works, and improperly extrapolated from the term

"overheated state" based upon impermissible hindsight using Appellant's claims 1 and 9 as a roadmap.

The Examiner's extrapolation from "overheated state" is based upon knowledge gleaned only from Appellant's disclosure. The Examiner could not have derived from the term "overheated state," cited only once in Matsunaga (col. 6, line 50), the conclusions set forth in the Examiner's Answer without impermissibly relying upon Appellant's claims 1 and 9. Matsunaga's Fig. 2B flowchart explicitly discloses that the torque of the vehicle motor is reduced when the limitation torque is less than the motor torque demand instruction value (S29:Yes) and the phase domain is the same (S31:Yes). Matsunaga reduces torque when these two parameters are satisfied in order to avoid overheating. Indeed, the term "overheated state" appears at the end of Matsunaga's description of the Fig. 2B flowchart when Matsunaga explains that overheating can be avoided. There is nothing in Matsunaga to suggest comparing temperatures, and the Examiner's Answer does not explain where the Examiner's application of "overheated state" is supported in Matsunaga. Such hindsight analysis is improper.

Matsunaga suffers problems that are overcome by Appellant's invention of reducing the torque of the vehicle motor when a selected temperature exceeds a restrictive temperature as recited in claims 1 and 9. Matsunaga wants to avoid overheating in order to avoid damaging the switching devices. Matsunaga thus anticipates overheating by comparing torques and phases, and overly conservatively reduces motor torque to prevent overheating. (See, e.g., col. 6, lines 35-55). Matsunaga does not consider the temperatures of the switching devices to determine if torque actually needs to be reduced in order to prevent overheating. By simply comparing torques and phases, Matsunaga unnecessarily restricts motor torque by prematurely reducing torque, and thus reduces driving performance of a vehicle.

By using temperature as recited in claims 1 and 9 and illustrated by Appellant's Fig. 7, for example, the torque is not reduced for the U-phase until a time (t1) when the temperature of the U-phase exceeds a restrictive temperature. By using temperature as recited in claims 1 and 9, torque is reduced when it is determined that the switching elements may be damaged because of excessive temperature. Appellant is thus able to ensure a higher torque for a longer period of time.

Shimazaki fails to overcome the deficiencies of Matsunaga. As admitted in the Examiner's Answer, Shimazaki is being used only for its alleged teaching that an excessive temperature is from a coil where a maximum current flow is detected. (E.g., Examiner's Answer, page 10, lines 22-24).

**(3) The Examiner's Reliance Upon Maximum Temperature And Maximum Current Is Misplaced**

The Examiner's Answer did not fully appreciate Appellant's argument that the phase with the maximum current is not always the phase with the maximum temperature. The Examiner's Answer instead focused on Shimazaki's disclosure that it was well known in the art that an excessive temperature is from a coil where a maximum current flow is detected. (Examiner's Answer, page 15, lines 10-19). This is not always true as evidenced by Appellant's Fig. 7, between times t2 and t3, for example, where the phase of the maximum temperature is the U-phase for most of this time period, even though the W-phase is the phase where the maximum current flows.

Moreover, the Examiner's Answer does not explain why one of ordinary skill in the art would have wanted to use this teaching of Shimazaki in connection with Matsunaga's system. The Examiner has not reasonably explained how Matsunaga's Fig. 2B flowchart, which uses torques and phases, would have been changed. As pointed out in Appellant's Appeal Brief, Shimazaki, like Matsunaga, does not even use temperature to reduce torque. Shimazaki

instead states that the stalled state is determined (in order to determine whether the drive current of the motor should be reduced) based on the accelerator opening and the rotational speed of the motor.

Regardless, as discussed above, the combination of Matsunaga and Shimazaki fails to disclose or suggest that the torque of the vehicle motor is reduced when the stalled state of the vehicle is detected **and** when a selected temperature exceeds a restrictive temperature (with the selected temperature being from a coil of the plurality of coils where a maximum current flow is detected), as recited in claims 1 and 9. Even assuming, *arguendo*, that it was well known in the art that an excessive temperature is from a coil where a maximum current flow is detected as allegedly suggested by Shimazaki, the Matsunaga/Shimazaki combination fails to disclose or suggest reducing torque when a selected temperature exceeds a restrictive temperature as discussed above.

**(4) Absence Of Further Limitation Of Stalled State Is Not Relevant**

Appellant's Appeal Brief consistently argued that the combination of Matsunaga and Shimazaki fails to disclose or suggest that the torque of the vehicle motor is reduced when the stalled state of the vehicle is detected **and** when a selected temperature exceeds a restrictive temperature (with the selected temperature being from a coil of the plurality of coils where a maximum current flow is detected), as recited in claims 1 and 9. In other words, the combination of Matsunaga and Shimazaki fails to disclose or suggest that the two claimed parameters must be met in order for the torque of the vehicle to be reduced.

The Examiner's Answer asserts that Appellant's claims do not limit how the stalled state is detected. (Examiner's Answer, page 4, line 22 - page 5, line 10; page 5, line 21 - page 6, line 5; page 6, lines 15-19; page 7, lines 4-9; page 7, lines 24 and 25; and page 12, line 23 - page 13, line 9). However, Appellant's argument did not focus on the first parameter, that is, Appellant did not argue that the combination of Matsunaga and Shimazaki fails to disclose or

suggest that the torque of the vehicle motor is reduced when the stalled state of the vehicle is detected. Rather, Appellant's argument focused on the second parameter, that is, the combination of Matsunaga and Shimazaki fails to disclose or suggest that the torque of the vehicle motor is reduced when a selected temperature exceeds a restrictive temperature.

Thus, the Examiner's focus upon the absence of further limitation of the stalled state in Appellant's claims is irrelevant.

* * * * *

For the foregoing reasons, as well as the reasons set forth in Appellant's December 23, 2008 Appeal Brief, Appellant respectfully requests this Honorable Board to reverse the rejection of claims 1-16.

Respectfully submitted,

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